

NEW REJECTIONS***Claim Rejections - 35 USC § 112***

12. **Claims 76-100** stand rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The Examiner contends as follows:

The phrase "unbalanced biaxial molecular orientation" in claim 76, lines 4-5 is vague and indefinite because it is unclear what is the difference between biaxial molecular orientation and unbalanced biaxial molecular orientation.

Applicant disagrees the Examiner. The term unbalanced biaxial molecular orientation is described in sufficient detail to enable one of ordinary skill in the art. Uniaxial molecular orientation means that the film is oriented in a single direction. Biaxial molecular orientation means that the film is oriented in two directions. But the specification requires a dominate direction, but the biaxial molecular orientation must be unbalanced, otherwise there would not be a major direction to orient the strands. Applicant, therefore, respectfully requests withdrawn of this rejection.

The Examiner contends as follows:

The phrase "in sufficient amount and/or coloration" in claim 78, line 3 is vague and indefinite because to one of ordinary what amount is sufficient and what is the basis of determining when an amount is sufficient. Furthermore, it is unclear how it is possible for there to be "coloration material in sufficient amount and coloration to render" when the term "and" is used as opposed to the term "or".

Applicant has amended claim 78 to remove this objection. Applicant has clarified the claims to read that the sufficiency can be in amount, coloration or amount and coloration. Applicant, therefore, respectfully requests withdrawn of this rejection.

The Examiner contends as follows:

The phrase "general thickness" in claim 97, line 1 is vague and indefinite because it is unclear what is the difference between "general thickness" and "thickness".

Applicant has amended the claim 97 to remove the word general. Applicant, therefore, respectfully requests withdrawn of this rejection.

The Examiner contends as follows:

Claim 97 recites the limitation "A-side" in line 8. There is insufficient antecedent basis for this limitation in the claim.

Applicant has amended the claim 97 to remove the antecedent basis problem. Applicant, therefore, respectfully requests withdrawn of this rejection.

Claim Rejections - 35 USC § 103

13. **Claims 76-77, 83-85, 88-89, 93 and 96** stand rejected under 35 U.S.C. 103(a) as being unpatentable over Britton (US 4,454,184) in view of Rasmussen (US 4,039,364).

Claim 76

The Examiner contends as follows:

Regarding **claim 76**, Britton (184) teaches a cross-laminate (FIGs 4 and 8, #11a and #12a) comprising at least one pair of two adjacent films A and B which are laminated together in sandwich relation (col. 6, ll. 23-26, multiple layers 3, 4, 5 and 6)

with the main direction of orientation in film A crossing the main direction of orientation in film B (FIGs 4 and 1 wherein #11a, #12a, #13a and #14a cross each other), and

the films each comprises a continuous main layer consisting of a polymer material (See col. 2, ll. 42-47 and FIG-4, continuous films of adhesive above and below the strands.)

on at least the mutually facing sides of the main layers a first surface layer of a different polymer material (See col. 2, ll. 42-47)

and interposed between each first surface layer and its main layer a second surface layer of a different polymer material (FIG-1 and col. 2, ll. 45-58),

the first surface layer on the main layer of each of the films A and B being a discontinuous layer (See Fig-1 wherein the strands are not a solid sheet thus discontinuous in the direction between the strands and wherein the adhesive is not discontinuous between the strands.), consisting of at least one array of coextruded thin strands with strands in the arrays of the two films arranged in crossing relation to one another (FIGs 4 and 1 wherein the strands cross each other) and obviously teaches wherein the lamination strength is highest at the strand crossing points as it is well known that strand crossing points have stronger lamination strength than non crossing point areas (col. 3, ll. 1-19), however, fails to expressly teach wherein each of the films A and B having an uniaxial or biaxial molecular orientation.

Fig 1, Fig 4 and Fig 8 of US 4,454,184 were displayed

However, Rasmussen (364) teaches wherein each of the films A and B having an uniaxial or biaxial molecular orientation (col. 6, ll. 1-5) for the purpose of producing durable tarps for heavy duty applications (col. 1, ll. 16-19).

Therefore, it would have been obvious to one having ordinary skill in the art at the time applicant's invention was made to either uniaxially or biaxially orient the films as taught by Rasmussen (364) in Britton (184) in order to provide durable tarps for heavy duty applications.

The phrase "separately coextruded" in claim 76, line 2, "at least partially by heating" in claim 76, line 3, "coextruded" in claim 76, line 14, claim 85, line 2 and "continuous extrusion" in claim 93, line 2 are **process limitations** in a product claim and hence not given any patentable weight since patentability of a product does not depend on its method of production (see MPEP § 2173.05(p)).

The phrase "selected to give high tensile strength" in claim 76, line 8, "the polymer material of said second surface layers being selected to control the lamination strength in the strand-free regions thereof and the polymer material

Regarding **claim 77**, Britton ('184) teaches wherein the strands in the respective arrays are in contact with one another at their crossing points and are of a polymer such as to be directly laminated to each other at the crossing points (col. 3, l. 8 "spot welded" strands and col. 3, l. 17 "fused laminate").

Applicant repeats the arguments above regarding Britton ('184) here. Applicant further notes the language cited in Britton ('184), but the layer being spot welded or fuse laminated are the full layers, the strands are completely encased in adhesive and not just the fibers so that the spot welds or fusion points are in the adhesive surround in the fibers not in fibers. The machine is designed to operate with films and not with strings of fibers, which it would have to do in order for the bonding to occur between the fibers themselves at their intersections. This conclusion is further buttressed because the fibers are nylon type 126 having a melting temperature above 400°F, while the adhesive layers are PCV (176°F melting point), natural rubber curing at 220°F range or other adhesives. Moreover, nylon's fiber strength is adversely affected by melting. Because Britton ('184) is directed to coated fabric layers, the layer would be significantly weakened if the fibers themselves were bonded directly to each other at fiber intersections.

Therefore, Applicant respectfully requests withdrawal of this section 103(a) rejection.

Claims 83 and 96

The Examiner contends as follows:

Regarding **claims 83 and 96**, Britton ('184) obviously teaches wherein the lamination strength at the crossing points of the thin strands of the arrays is at least 40 g cm⁻¹ and a lamination strength in the strand-free regions of the cross-laminate is not more than 50% of the lamination strength at said crossing points of the strands thereof, as measured by a peel test carried out on narrow specimens of the cross-laminate at a velocity of about 1 mm sec⁻¹, and the lamination strength in the strand-free regions is at the highest 75% of the bonding strength between the strands at the crossing points, as measured by the peel test since a structure with an equivalent structure would also have the same lamination strength (col. 2, l. 42-58).

Applicant repeats the arguments above regarding Britton ('184) here. While it is true that the lamination strength is as reported, the strength is due to adhesive bonding and not due to bonding at *loci* of intersection of facing stranded films. Again, the fibers in Britton ('184) are fully encased in adhesive, and all bond occurs in the adhesive coating and not at the fibers, which never touch.

Therefore, Applicant respectfully requests withdrawal of this section 103(a) rejection.

Claim 84

The Examiner contends as follows:

Regarding **claim 84**, Britton ('184) teaches wherein a cross-laminate comprising an assembly of a common film A having a main layer with a strand-formed first surface layer on both of its surfaces and a second continuous layer interposed between each the first surface layer and the main layer and two exterior films B each having on at least one of its sides a strand-formed first surface layer of each the exterior film B facing toward the common film A with the strands thereof bonded to the strands of the common film A (see col. 6, ll. 23-26 and FIG-1 wherein an additional layer such A with a strand is placed on top of the laminate).

Applicant repeats the arguments above regarding Britton ('184) here. Again, the problem with Britton ('184) is that it does not disclose, teach or suggest disposing the strands on the surface of the films and bonding the films at the intersections of strands of opposing film surfaces, where the strands are angled between the films (intersection in well defined *loci*).

Therefore, Applicant respectfully requests withdrawal of this section 103(a) rejection.

Claim 85

The Examiner contends as follows:

Regarding **claim 85**, Britton ('184) teaches on at least one of its outer films, an exterior surface layer of a polymer material (col. 2, ll. 42-58).

The phrase "**adapted to enhance a surface property of the laminate selected from its heat-sealing capability or its frictional properties**" in claim 85, lines 3-4 is not given any patentable weight since the applicant is introducing non-structural **functional language** into the product claims (see MPEP 2173 (q)) and (See MPEP 2173.05(g)).

Applicant repeats the arguments above regarding Britton ('184) here. Regardless of the surface coating, Britton ('184) does not disclose, teach or suggest disposing the strands on the surface of the films and bonding the films at the intersections of strands of opposing film surfaces, where the strands are angled between the films (intersection in well defined *loci*).

Therefore, Applicant respectfully requests withdrawal of this section 103(a) rejection.

Claim 88

The Examiner contends as follows:

Regarding **claim 88**, Britton ('184) teaches wherein the second surface layer includes an adhesion modifying material (col. 2, ll. 42-58).

The phrase "**to establish a blocking between the contacting mutually facing strand-free regions thereof**" in claim 88, lines 2-3 is not given any patentable weight since the applicant is introducing non-structural **functional language** into the product claims (see MPEP 2173 (q)) and (See MPEP 2173.05(g)).

However, Lappala ('389) teaches that any suitable diameter strand may be used (See col. 2, l. 45, any suitable diameter can be used), which clearly changes the films/laminate ratio. Therefore, it would have been obvious to a person of ordinary skill in the art at the time of applicant's invention to select a strand with a diameter that provides the above thickness ratio as taught by Lappala ('389) for the purpose of providing a laminate that is light and strong (col. 1, ll. 25-28).

Applicant repeats the arguments above regarding Britton ('184) here. Again, the combination of Britton (184) and Rasmussen (364) does not disclose, teach or even suggest disposing the strands on the surface of the films and bonding the films at the intersections of strands of opposing film surfaces, where the strands are angled between the films (intersection in well defined *loci*). The inclusion of Lappala ('389) does nothing to repair the deficiencies in either Britton (184), Rasmussen (364) or their combination. Therefore, the new combination also does not disclose, teach or even suggest disposing the strands on the surface of the films and bonding the films at the intersections of strands of opposing film surfaces, where the strands are angled between the films (intersection in well defined *loci*).

Therefore, Applicant respectfully requests withdrawal of this section 103(a) rejection.

Claim 80

The Examiner contends as follows:

Regarding claim 80, Britton ('184) and Rasmussen (364) teach the laminate discussed above, however, fail to expressly disclose wherein the collective area of the strands in each of the first surface layers constitutes not more than 60% of the area of the respective film side.

However, Lappala (389) teaches that any suitable diameter strand may be used (See col. 2, l. 45, any suitable diameter can be used), which clearly changes the above area ratio. Therefore, it would have been obvious to a person of ordinary skill in the art at the time of applicant's invention to select a strand with a diameter that provides the above area ratio as taught by Lappala (1389) for the purpose of providing a laminate that is light and strong (col. 1, ll. 25-28).

Applicant repeats the arguments above regarding Britton ('184) here. Again, the combination of Britton (184) and Rasmussen (364) does not disclose, teach or even suggest disposing the strands on the surface of the films and bonding the films at the intersections of strands of opposing film surfaces, where the strands are angled between the films (intersection in well defined *loci*). The inclusion of Lappala ('389) does nothing to repair the deficiencies in either Britton (184), Rasmussen (364) or their combination. Therefore, the new combination also does not disclose, teach or even suggest disposing the strands on the surface of the films and bonding the films at the intersections

Applicant repeats the arguments above regarding Britton ('184) here. Again, the combination of Britton (184) and Rasmussen (364) does not disclose, teach or even suggest disposing the strands on the surface of the films and bonding the films at the intersections of strands of opposing film surfaces, where the strands are angled between the films (intersection in well defined *loci*). The inclusion of Lappala ('389) does nothing to repair the deficiencies in either Britton (184), Rasmussen (364) or their combination. Therefore, the new combination also does not disclose, teach or even suggest disposing the strands on the surface of the films and bonding the films at the intersections of strands of opposing film surfaces, where the strands are angled between the films (intersection in well defined *loci*).

Therefore, Applicant respectfully requests withdrawal of this section 103(a) rejection.

Claim 95

The Examiner contends as follows:

Regarding claim 95, Britton ('184) and Rasmussen (364) teach the laminate discussed above, however fail to expressly disclose wherein the thickness increase in each of the films A and B at the locations where the strands are present is at most 10% of the film thickness in strand-free regions.

However, Lappala ('389) teaches that any suitable diameter strand may be used (See col. 2, l. 45, any suitable diameter can be used), which clearly changes the thickness increase. Therefore, it would have been obvious to a person of ordinary skill in the art at the time of applicant's invention to select a strand with a diameter that provides the above thickness increase as taught by Lappala ('389) for the purpose of providing a laminate that is light and strong (col. 1, ll. 25-28).

Applicant repeats the arguments above regarding Britton ('184) here. Again, the combination of Britton (184) and Rasmussen (364) does not disclose, teach or even suggest disposing the strands on the surface of the films and bonding the films at the intersections of strands of opposing film surfaces, where the strands are angled between the films (intersection in well defined *loci*). The inclusion of Lappala ('389) does nothing to repair the deficiencies in either Britton (184), Rasmussen (364) or their combination. Therefore, the new combination also does not disclose, teach or even suggest disposing the strands on the surface of the films and bonding the films at the intersections of strands of opposing film surfaces, where the strands are angled between the films (intersection in well defined *loci*).

Therefore, Applicant respectfully requests withdrawal of this section 103(a) rejection.

Claim 97

surfaces, where the strands are angled between the films (intersection in well defined *loci*). The inclusion of Lappala ('389) does nothing to repair the deficiencies in either Britton (184), Rasmussen (364) or their combination. Therefore, the new combination also does not disclose, teach or even suggest disposing the strands on the surface of the films and bonding the films at the intersections of strands of opposing film surfaces, where the strands are angled between the films (intersection in well defined *loci*).

Therefore, Applicant respectfully requests withdrawal of this section 103(a) rejection.

Claim 98

The Examiner contends as follows:

Regarding **claim 98**, Britton ('184) and Rasmussen (364) teach the laminate discussed above, however fail to expressly disclose wherein the first surface layer on each of the films A and B constitutes at the highest 5% of the volume of the corresponding film.

However, Lappala (389) teaches that any suitable diameter strand may be used (See col. 2, l. 45, any suitable diameter can be used), which clearly changes the volume. Therefore, it would have been obvious to a person of ordinary skill in the art at the time of applicant's invention to select a strand with a diameter that provides the above volume as taught by Lappala ('389) for the purpose of providing a laminate that is light and strong (col. 1, ll. 25-28).

Applicant repeats the arguments above regarding Britton ('184) here. Again, the combination of Britton (184) and Rasmussen (364) does not disclose, teach or even suggest disposing the strands on the surface of the films and bonding the films at the intersections of strands of opposing film surfaces, where the strands are angled between the films (intersection in well defined *loci*). The inclusion of Lappala ('389) does nothing to repair the deficiencies in either Britton (184), Rasmussen (364) or their combination. Therefore, the new combination also does not disclose, teach or even suggest disposing the strands on the surface of the films and bonding the films at the intersections of strands of opposing film surfaces, where the strands are angled between the films (intersection in well defined *loci*).

Therefore, Applicant respectfully requests withdrawal of this section 103(a) rejection.

16. **Claims 87, 91-92 and 99** stand rejected under 35 U.S.C. 103(a) as being unpatentable over Britton (US 4,454,184) in view of Rasmussen (US 4,039,364), Velazquez (US 5,614,297) and Cederblad et al. (US 6,204,207).

Claim 87

The Examiner contends as follows:

Regarding **claim 87**, Britton ('184) and Rasmussen (364) teach the laminate discussed above, and Rasmussen (364) teaches the laminate wherein each of the films A and B of the main layer is selected from HDPE, LLDPE or a blend of the two (col. 13, ll. 3-7), and the strands in the first surface layers of the films is selected from a polymer which consists essentially of a copolymer of ethylene (col. 13, ll. 11-30), however, fail to expressly disclose wherein the continuous second surface layer is formed mainly of LLDPE in admixture with 5 - 25% of a copolymer of ethylene having a melting point or a melting range within the temperature range of 50 - 80°C, the strands having a melting point or a melting range within the temperature range of 50 - 100°C.

However, Velazquez ('297) teaches wherein the continuous second surface layer is formed mainly of LLDPE in admixture with 5 - 25% of a copolymer of ethylene having a melting point or a melting range within the temperature range of 50 - 80 °C (col. 8, ll. 26-47 and col. 3, l. 46) for the purpose or providing a film that can be laminated with one or more films (col. 6, ll. 13-17).

Furthermore, Cederblad ('207) teaches wherein the strands have a melting point or a melting range within the temperature range of 50 - 100 °C (col. 12, l. 42 wherein the melting point is 67°C /152°F) for the purpose of forming firm bonds (col. 6, l. 63).

Therefore, it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to provide a laminate with a surface layer of LLDPE and ethylene with the above melting point range and the above strands as taught by Velazquez ('297) and Cederblad ('207) in Britton ('184) to provide a laminate as described above.

Applicant repeats the arguments above regarding Britton ('184) here. Again, the combination of Britton (184) and Rasmussen (364) does not disclose, teach or even suggest disposing the strands on the surface of the films and bonding the films at the intersections of strands of opposing film surfaces, where the strands are angled between the films (intersection in well defined *loci*). The inclusion of Velazquez (US 5,614,297) and Cederblad et al. (US 6,204,207) do nothing to repair the deficiencies in either Britton (184), Rasmussen (364) or their combination. Therefore, the new combination also does not disclose, teach or even suggest disposing the strands on the surface of the films and bonding the films at the intersections of strands of opposing film surfaces, where the strands are angled between the films (intersection in well defined *loci*).

Therefore, Applicant respectfully requests withdrawal of this section 103(a) rejection.

Claims 91-92 and 99

The Examiner contends as follows:

Regarding **claims 91-92 and 99**, Britton ('184) and Rasmussen (364) teach the laminate discussed above, however fail to expressly disclose wherein the average

melting point of the polymer material which constitutes the strand-formed first layer of each of the films A and B is at least about 10 °C/15 °C/20 °C lower than the average melting point of the polymer material which of the main layer.

However, Cederblad ('207) teaches wherein the average melting point of the polymer material which constitutes the strand-formed first layer of each of the films A and B is at least about 10 °C/20 °C lower than the average melting point of the polymer material which constitutes the main layer (col. 12, ll. 38-53) for the purpose of providing firm and light bonds (col. 6, ll. 60-67).

Therefore, it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to provide strands with melting points below that of the films as taught by Cederblad ('207) in Britton ('184) in order to produce a laminate with firm and light bonds.

Applicant repeats the arguments above regarding Britton ('184) here. Again, the combination of Britton (184) and Rasmussen (364) does not disclose, teach or even suggest disposing the strands on the surface of the films and bonding the films at the intersections of strands of opposing film surfaces, where the strands are angled between the films (intersection in well defined *loci*). The inclusion of Velazquez (US 5,614,297) and Cederblad et al. (US 6,204,207) do nothing to repair the deficiencies in either Britton (184), Rasmussen (364) or their combination. Therefore, the new combination also does not disclose, teach or even suggest disposing the strands on the surface of the films and bonding the films at the intersections of strands of opposing film surfaces, where the strands are angled between the films (intersection in well defined *loci*).

Therefore, Applicant respectfully requests withdrawal of this section 103(a) rejection.

ANSWERS TO APPLICANT'S ARGUMENTS

The Examiner states as follows:

17. In response to Applicant's argument (p. 21, para. 1 of Applicant's Paper filed 10 October 2006) that the basis for requiring a restriction no longer exists, it is noted that Applicant's argument is not found persuasive for the reasons of record in the Office Action dated 30 May 2006.

18. In response to Applicant's argument (p. 26, para. 2 of Applicant's Paper filed 10 October 2006) that Britton ('184) does not teach coextruded, it is noted that coextruded, coextrusion etc. are process limitations in product claims and hence not given any patentable weight since patentability of a product does not depend on its method of production (see MPEP § 2173.05(p)).

19. In response to Applicant's argument (p. 26, para. 2 of Applicant's Paper filed 10 October 2006) that Britton ('184) does not teach molecular orientation, it is noted that Rasmussen ('364) teaches uniaxial or biaxial molecular orientation (col. 6, ll. 1-5) for the purpose of producing durable tarps for heavy duty applications (col. 1, ll. 16-19).

Therefore, it would have been obvious to one having ordinary skill in the art at the time applicant's invention was made to either uniaxially or biaxially orient the films as taught by Rasmussen ('364) in Britton ('184) in order to provide durable tarps for heavy duty applications.

20. In response to Applicant's argument (p. 26, para. 3 of Applicant's Paper filed 10 October 2006) that the objective of Britton ('184) is quite different from Applicant's invention, it is noted that patentability of Applicant's invention is not based on the objective of Applicant's invention and how Britton's ('184) objective may or may not be different.

21. In response to Applicant's argument (p. 27, para. 2 of Applicant's Paper filed 10 October 2006) that the action of the hot probes of Britton ('184) are not precisely synchronized with the spacing, it is noted that Applicant does not claim hot probes, thus the argument is not germane to an issue at bar.

22. In response to Applicant's argument (p. 27, paras. 3-4 of Applicant's Paper filed 10 October 2006) that Lappala's ('389) strands cannot be anchored at their crossing points and does not teach coextrusion, it is noted that Lappala ('389) is not cited as teaching anchoring and furthermore, coextrusion are process limitations in product claims and hence not given any patentable weight since patentability of a product does not depend on its method of production (see MPEP § 2173.05(p)).

23. In response to Applicant's argument (p. 28, para. 2 of Applicant's Paper filed 10 October 2006) that Johnston ('128) teaches fibrous products and Applicant's products are not fibrous, it is noted that patentability of Applicant's invention is not determined by additional, possible further teachings of Johnston ('128).

24. In response to Applicant's argument (p. 28, para. 3 of Applicant's Paper filed 10 October 2006) that Bonke ('966) can not teach corrugations, it is noted that Bonke ('966) is no longer used in the rejection of applicant's claims.

25. In response to Applicant's argument (p. 28, para. 4 of Applicant's Paper filed 10 October 2006) that it is difficult to comprehend how Velazquez ('297) can be transposed to a totally different utility, it is noted that Velazquez ('297) teaches wherein the continuous second surface layer is formed mainly of LLDPE in admixture with 5 - 25% of a copolymer of ethylene having a melting point or a melting range within the temperature range of 50 - 80 °C (col. 8, ll. 26-47 and col. 3, l. 46) for the purpose or providing a film that can be laminated with one or more films (col. 6, ll. 13-17).

26. In response to Applicant's argument (p. 28, para. 5 of Applicant's Paper filed 10 October 2006) that Cederblad ('207) would not suggest the different melting points, it is noted that Cederblad ('207) teaches wherein the strands have a melting point or a melting range within the temperature range of 50 - 100 °C (col. 12, l. 42 wherein the melting point is 67°C/152 °F) for the purpose of forming firm bonds (col. 6, l. 63). Therefore, it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to provide a laminate with the above melting point range as taught by Velazquez ('297) in order to provide applicant's laminate.

Applicant acknowledges these statements, but note that neither the primary reference, Britton ('184), nor any of the secondary references combined therewith disclose, teach or even suggest the

laminates as currently claimed. Thus, the present claims are not obvious over any of the references alone or taken in any combination.

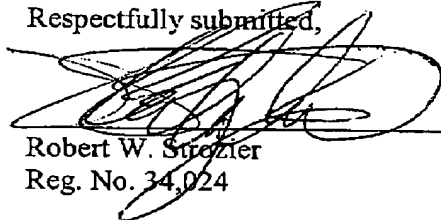
Having fully responded to the Examiner's Final Office Action, Applicant respectfully urges that is application be passed onto allowance.

The Commissioner is authorized to charge any claim charges or refund any overpayments associated with this response to Deposit Account 501518.

If it would be of assistance in resolving any issues in this application, the Examiner is kindly invited to contact applicant's attorney Robert W. Strozier at 713.977.7000

Date: March 2, 2007

Respectfully submitted,



Robert W. Strozier
Reg. No. 34,024